

Application No.: 10/617,585
Docket No.: FA1048USNA

Remarks/Arguments

Status of the Application

Claims 1-21 and 26-30 are pending in the application pursuant to Applicants' election without traverse in response to the restriction requirement.

Claims 22-25 have been withdrawn in response to a restriction requirement as they relate to non-elected subject matter. These claims have been withdrawn without prejudice to pursuing prosecution of any presently excluded embodiments or subject matter in one or more future continuation or divisional applications.

Claims 2 and 4 are withdrawn per election of species. These claims may be examined in this case once examination and prosecution on the merits of the currently elected species has been completed. In any event, the withdrawal of these claims by Applicants is also without prejudice to the right to pursue prosecution of any presently excluded embodiments or subject matter in this application or in one or more future continuation or divisional applications.

Amendments to the Claims

Claims 1 and 26 are amended to change the terminology concerning the composition of the copolymer from "comprising" to "consisting of" and to incorporate the optional ingredients from original claims 13 and 14. As amended, claims 1 and 26 require for the copolymer one or more non-functional acrylate monomers and one or more functional methacrylate monomers, while a low concentration of either non-functional acrylates or functional methacrylates is optional (thus, neither, one or both may be present). The amendments are supported in the specification, inter alia, at page 6, lines 9-23, page 7, lines 23-32, and in the descriptions of Copolymers 1 - 5, pages 21-24.

New claims 26-30 are added to recite that the non-functional and mono-functional chains in the copolymer are limited. These claims are supported in the specification at page 6, lines 9-23.

Accordingly, no new matter is introduced by the claim amendments.

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Claim Rejections – 35 U.S.C. §102

Rink

Claims 1-3, 5-11, 13-21, 26 are rejected under 35 U.S.C. §102(b) as being anticipated by Rink, et al., U.S. Patent No. 6,013,739. Applicants respectfully traverse this rejection on the basis of the foregoing amendments and the remarks presented below. The application is directed to fast-curing performance coatings that cure at ambient or slightly elevated temperatures; Rink is directed to a coating composition comprising a binder consisting of a polyacrylate resin containing hydroxyl group(s) and at least one crosslinking agent. The present claims, as amended, require one or more non-functional acrylate monomers and one or more functional methacrylate monomers; very low amounts of non-functional acrylate monomers and/or functional methacrylate monomers may optionally be present, within limits specified, because the low-concentration presence of these species does not alter the desired characteristics of the copolymer (please see the specification at page 6, lines 9-23 and page 7, lines 23-32).

In Rink, the polyacrylate resin consists of binder A which comprises (a) both functional acrylate and functional methacrylate monomers (a1) and (a2), respectively, Col. 18, lines 26-35; (b) functional esters of acrylic and methacrylic acid different from (a), Col. 18, lines 36-43; (c) functional esters of acrylic and methacrylic acid different from (a) and (b), Col. 18, lines 44-48; (d) – (e) carboxylic acid monomers, Col. 18, lines 49-54; and (f) ethylenically unsaturated monomers different from (a) – (e), Col. 18, lines 55-58, where (b), (d), (e) and (f) are optional, together with component B which includes (B1) polyisocyanate crosslinking agents (Col. 18, line 66 to Col. 19, line 3) and optional crosslinking agents (B2) and (B3) (Col. 19, lines 4-11). Rink does not teach, disclose or suggest the claimed copolymer consisting of functional acrylates and non-functional methacrylates, in that Rink's binder component A has 10 – 51% by weight hydroxyfunctional monomers (a1) and (a2), 0 – 20% functional acrylates or methacrylates different from (a1) or (a2), and 28 – 85% by weight of a functional acrylate or methacrylate (i.e., having at least 4 carbons in the alcohol residue) that is different from (a) and (b), and the optional components (d), (e) and (f). Please see also Rink at Col. 5, lines 41-64: "It is essential to the invention that the mixture employed as compound (a) comprises" (a1) which is one or more functional acrylates and/or one or more functional methacrylates, and (a2) which is one or more functional acrylates and/or one or more functional methacrylates. There is absolutely no limitation that the acrylates be non-functional and the methacrylates be functional, as claimed in

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the present application. The Office Action (pages 3-4, paragraph 5) states that Rink discloses non-functional acrylate monomers and functional methacrylate monomers, as well as non-functional acrylate monomers. This observation still does not address the claim limitations requiring the copolymer to contain non-functional acrylate monomers and functional methacrylate monomers to form the desired copolymer.

Claims 1 and 26 are the independent claims, and both recite the requirement that the acrylate monomers be non-functional and the methacrylate monomers functional. The remaining claims pending in the case depend directly or indirectly from claim 1 and further patentably distinguish over the reference. Accordingly, this rejection should be withdrawn and not reapplied.

Yahkind

Claims 1, 3, 5-21, 26 are rejected as anticipated by Yahkind et al., U.S. Patent No. 6,753,386. Applicants respectfully traverse this rejection. Yahkind is primarily directed to preparations of polyurethane polyols. Col. 11, lines 9-27. The functional species are diols (symmetric and asymmetric), triols, and some alcohols (R-OH) and thiols (R-SH), Col. 9, line 35 to Col. 10, line 27. In one embodiment, Col. 20, line 66 to Col. 21, line 14, a functional methacrylate (hydroxypropyl methacrylate) was combined with a non-functional methacrylate (butyl methacrylate), a non-functional acrylate (butyl acrylate), a methacrylic acid, and styrene. This embodiment from Yahkind does not meet the limitations of the claims (which require non-functional acrylates and functional methacrylates) because the example in Yahkind discloses the use of a non-functional methacrylate (butyl methacrylate) and a methacrylic acid. As to the optional components in the amended claims, neither Yahkind nor the synthesis patent incorporated therein by reference, 5,155,201, disclose or suggest the quantities or weight percentages of the (meth)acrylates, and the claimed copolymer does not incorporate styrene. Both independent claims, claims 1 and 26, contain the limitation requiring the copolymer to be polymerized from one or more non-functional acrylate monomers and one or more functional methacrylate monomers, or alternatively, minor concentrations or a functional acrylate, or a non-functional methacrylate, or both. The remaining claims depend directly or indirectly from claim 1 and further patentably distinguish over the reference. Accordingly, this rejection should be withdrawn and not reapplied.

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Claim Rejection – 35 U.S.C. § 103

Claim 12 was rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Rink in view of Roesler et al., U.S. 2003/0232942. This rejection is also respectfully traversed. As discussed above, Rink mixes functional acrylates and methacrylates. In Rink, all of the acrylates and methacrylates (see claim 1 of Rink) are functional. In Roesler, a hydroxylalkyl (meth)acrylate undergoes an alkoxylation reaction to form a polyether monool [0061]. Neither Rink nor Roesler disclose, teach or suggest a copolymer comprised of non-functional acrylate monomers and functional methacrylate monomers. Nor has anything been cited in the Office Action to suggest knowledge or trends in the field indicating that the combination of these references would lead to the critical limitations cited in claims 1 and 26. Rather, the Office Action has focused on the addition of silane functionalities to the monool polyether by reaction with (i) isocyanatopropyl trimethoxy silane to form an intermediate followed by (ii) reaction with a primary or secondary aminosilane or thiosilane. It is in this second step that Roesler teaches the addition of silane functionalities to the polyether monool. It is respectfully averred that neither reference, alone or in combination, would have suggested success in designing a coating material comprising a copolymer synthesized of non-functional acrylate monomers and functional methacrylate monomers. Present claim 12 depends directly from claim 1 and embodies all the limitations of claim 1 as well as the additional limitations of claim 12. Claim 12 is directed to providing the copolymer (comprised of non-functional acrylates and functional methacrylates) with silane functionalities by reacting the copolymer formed as per claim 1 with isocyanatopropyl trimethoxy silane, thus eliminating Roesler's second reaction step. Applicants respectfully submit that Applicants' elimination of the second step is an indication of non-obviousness in and of itself and that, in any event, claim 12 should be considered patentable depending, as Applicants respectfully submit, from a base claim that is both novel and non-obvious. For these reasons, Applicants respectfully request that this rejection be withdrawn and not reapplied.

Conclusion


In view of the foregoing, allowance of the above-referenced application is respectfully requested.

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Respectfully submitted,


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